In response to the final Office Action, the October 18, 2004 telephonic interview and the Examiner's factually incorrect conclusion that either polyethylene or PET can be considered to be "a derivative of polythiophene", Dr. Yutaka Higuchi, who holds a doctorate in applied chemistry, prepared and executed a Declaration under 37 CFR 1.132 which is submitted herewith. The Declaration, in part, establishes the following facts:

1. Polythiophene (1) is a conductive polymer having the chemical structure shown on page 2 of the Declaration;

2. Poly (3,4-ethylenedioxythiophene) (2), or polyethylene dioxithiophene, is a conductive polymer having the chemical structure shown on page 2 of the Declaration;

3. Polyethylene (3) and polyethylene terephthalate (PET) (4) are each insulating polymers having the chemical structures shown on page 2 of the Declaration. Neither polyethylene nor PET are conductive polymers;

4. Polythiophene (1) and polyethylene dioxithiophene (2) each include sulfur (S) in their chemical structures. The sulfur element in polythiophene and polyethylene dioxithiophene is represented by the suffix "thiophene." Thiophene is a unit of $-C_4H_4S-$, and polythiophene is composed of repeating units of $-C_4H_4S-$, that is, repeating units of thiophene;

5. Saito et al. (U.S. 6,595,653) correctly describes that polyethylene dioxithiophene (2) is a species of thiophene. Polyethylene dioxithiophene, however, is only a species of thiophene (polythiophene) because polyethylene dioxithiophene includes dioxithiophene;

6. Neither polyethylene (3) nor PET (4) include thiophene, and therefore, neither polyethylene nor PET can be considered to be a species of polythiophene;

7. As used in the art, a compound that is generated by a chemical change of a small portion in a certain original compound is called a "derivative of" the original compound. Normally, a compound whose hydrogen atom or specific atomic group is replaced by another atom or atomic group is called a derivative (see encyclopedic dictionary in Attachment E submitted with the Declaration).

8. According to the above definition, even if polyethylene could be synthesized from polythiophene, "polyethylene" cannot be referred to as a derivative of "polythiophene," because

polyethylene cannot be obtained without replacing "a main skeletal structure of polythiophene" or a "thiophene unit" with an "ethylene unit." Such a large scale structural replacement cannot be considered to be "a chemical change of a small portion in a certain original compound" according to the above definition of the term "derivative";

9. To date, it has proven to be impossible to synthesize polyethylene from polythiophene, and vice versa;

10. As used in the art, a compound that is generated by a chemical change of a small portion in a certain original compound is called a "derivative of" the original compound. The term "derivative" is mainly used for a substitution product (reaction) but is sometimes used for an addition product. The term "derivative" is based on, for example, a compound or a hydrocarbon with a fewer number of atoms (see encyclopedic dictionary in Attachment F submitted with the Declaration;

11. According to this latter definition of the term "derivative," even if polyethylene could be synthesized from polythiophene, which has proven to be impossible as described above, "polyethylene" cannot be called a derivative of "polythiophene," because the "ethylene unit" in polyethylene has a few number of atoms than in the "thiophene" unit of polythiophene; and

12. Neither polyethylene nor polyethylene terephthalate (PET) are either species of or derivatives of polythiophene.

Claims 19 and 33 each recite a push-button switch member comprising a transparent electrode which is disposed so as to oppose the base electrode and to contact with the display section. The transparent electrode, as recited in claims 19 and 33, is continuously and integrally formed in a range including and between a side surface and an upper surface of the key-top portion. Further, as recited in claims 19 and 33, the transparent electrode comprises a transparent conductive polymer which is selected from the group consisting of a derivative of polypyrrole, a derivative of polythiophene and a derivative of polyaniline.

Tanabe discloses an EL sheet diaphragm which includes an illuminatable diaphragm portion 2. The diaphragm portion 2 includes a transparent electrode layer 4. The transparent electrode layer 4 is formed in a surface of polyethylene terephalate (PET) film 3, which is

sequentially laminated by a light emitting layer 5, a dielectric layer 6, a rear electrode layer 7 and an insulating layer 8 (see Column 2, lines 44-58 and Figure 2). Accordingly, Tanabe discloses that the transparent electrode 4 is formed from PET.

In rejecting claims 19 and 33, the Examiner asserted that by disclosing a transparent electrode 4 which is formed from PET, Tanabe discloses a transparent conductive polymer consisting of polythiophene. In particular, at the top of page of page 3 of the Office Action, the Examiner asserted that "it is well known polyethylene is a specie[s] of polythiophene." To support this assertion, the Examiner cited Saito et al. as "indicat[ing] that polyethylene is [a] polythiophene species conductive polymer" (see top of page 7 of the Office Action). Accordingly, based on the Examiner's interpretation of the disclosure of Saito et al., the Examiner concluded that polyethylene is a species of polythiophene.

However, the Applicants respectfully disagree with the Examiner's interpretation of Saito et al. Saito et al. discloses that the transparent conductive film 2 is not limited to vapor-depositing ITO (indium-tin oxide) on PET. Alternatively, Saito et al. discloses that the transparent conductive film 2 may be a conductive polymer instead of vapor-depositing ITO on PET. *If* the transparent conductive film 2 is a conductive polymer, Saito discloses that a polythiophene species conductive polymer is preferable as the conductive polymer of the transparent conductive film 2. Saito et al. discloses that polyethylene dioxithiophene, not polyethylene, is preferred as the species of the polythiophene conductive polymer of the transparent conductive film 2 (see Column 2, lines 50-59).

Accordingly, despite the Examiner's interpretation to the contrary, Saito et al. clearly does not disclose that polyethylene is a species of polythiophene. Instead, Saito et al. clearly discloses that polyethylene dioxithiophene, not polyethylene, is a species of polythiophene. As described above, polyethylene dioxithiophene is only a species of thiophene (polythiophene) because polyethylene dioxithiophene includes dioxithiophene. Therefore, Saito et al. correctly describes that polyethylene dioxithiophene is a species of polythiophene.

However, despite the Examiner's assertion to the contrary, the Applicants respectfully submit that neither polyethylene nor PET are species of polythiophene.

Polyethylene, a simple polymer, is composed of chains of repeating $-CH_2-$ units (see page 1204 of Appendix submitted with the September 27, 2004 Request for Reconsideration). Polyethylene terephthalate (PET) is a fiber forming polyesters which are prepared from terephthalic acid or its esters. PET is a condensation polymer and an insulating polymer which is produced from the monomers ethylene glycol, $HOCH_2CH_2OH$, a dialcohol, and dimethyl terephthalate, $CH_3O_2C—C_6H_4–CO_2CH_3$, a diester (see pages 1204-1205 of Appendix submitted with the September 27, 2004 Request for Reconsideration).

On the other hand, polythiophene is composed of repeating units of $-C_4H_4S-$ (thiophene) (see page 1473 of Appendix submitted with the September 27, 2004 Request for Reconsideration). Accordingly, thiophene (polythiophene), as shown on page 1473 of Appendix, clearly requires a sulfur (S) group in its composition. Polyethylene dioxithiophene, which, as correctly described in Saito et al., is a species of thiophene. Polyethylene dioxithiophene, however, is only a species of thiophene (polythiophene) because polyethylene dioxithiophene includes dioxithiophene.

However, neither polyethylene nor PET includes a thiophene group. Therefore, neither polyethylene nor PET are a species of thiophene or polythiophene.

Furthermore, as established in the Declaration submitted herewith, neither polyethylene nor PET are derivatives of thiophene or polythiophene.

Therefore, even with the disclosure of Saito et al., Tanabe clearly does not disclose or suggest a transparent electrode comprising a transparent conductive polymer which is selected from the group consisting of a derivative of polypyrrole, a derivative of polythiophene and a derivative of polyaniline, as recited in claims 19 and 33.

Accordingly, claims 19 and 33 are clearly not anticipated by Tanabe since Tanabe fails to disclose or suggest each and every limitation recited in claims 19 and 33.

In item 4 on page 3 of the Office Action, claims 20-21 and 34-35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tanabe. As described above, Tanabe clearly does not disclose or suggest each and every limitation of claims 19 and 33. Therefore, Tanabe also fails to

disclose or suggest the limitations recited in claims 20-21 and 34-35 which depend from claims 19 and 33, respectively.

In item 5 on page 4 of the Office Action, claims 23-28, 30-31, 37-42 and 44 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tanabe in view of Lemarchand et al. (EP 0,981,144). The Applicants will hereinafter refer to U.S. 6,416,196 to Lemarchand et al. (hereinafter "Lemerchand et al.") in the following remarks since Lemerchand et al. is an English language translation of EP 0,981,144.

As described above, Tanabe clearly does not disclose or suggest each and every limitation of claims 19 and 33. For the following reasons, the Applicants respectfully submit that Lemarchand et al. does not cure the deficiencies of Tanabe for failing to disclose or suggest a transparent electrode comprising a transparent conductive polymer which is selected from the group consisting of a derivative of polypyrrole, a derivative of polythiophene and a derivative of polyaniline, as recited in claims 19 and 33.

Lemarchand et al. discloses a push-button switch member 1 which uses a transparent conducting ink (ITO) for the transparent electrode 6 (see Column 3, lines 24-45). Further, Lemarchand et al. also discloses that a conducting track 213 is made of the conducting ink (see Column 5, lines 26-28). Accordingly, Lemarchand et al., similar to Tanabe, also clearly does not disclose or suggest a transparent electrode comprising a transparent conductive polymer which is selected from the group consisting of a derivative of polypyrrole, a derivative of polythiophene and a derivative of polyaniline, as recited in claims 19 and 33.

Therefore, neither Tanabe nor Lemarchand et al., either individually or in combination, disclose or suggest a transparent electrode comprising a transparent conductive polymer which is selected from the group consisting of a derivative of polypyrrole, a derivative of polythiophene and a derivative of polyaniline, as recited in claims 19 and 33.

Accordingly, no obvious combination of Tanabe and Lemarchand et al. would result in the inventions of claims 19 and 33 since neither Tanabe nor Lemarchand et al., either individually or in combination, disclose or suggest each and every limitation of claims 19 and 33.

Furthermore, because of the clear distinctions discussed above, the Applicants respectfully submit that no obvious combination of Lemerchand et al. and Tanabe would result in the inventions of new claims 19 and 33 since Lemerchand et al. and Tanabe each fail to disclose or suggest each and every limitation of new claims 19 and 33. Furthermore, it is submitted that the clear distinctions discussed above are such that a person having ordinary skill in the art at the time the invention was made would not have been motivated to modify Tanabe and Lemerchand et al. in such a manner as to result in, or otherwise render obvious, the present invention as recited in claims 19 and 33. Therefore, it is submitted that claims 19 and 33, as well as claims 20-32 and 34-45 which depend therefrom, are clearly allowable over the prior art as applied by the Examiner.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is respectfully solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

A fee and a Petition for a two-month Extension of Time are filed herewith pursuant to 37 CFR § 1.136(a).

Respectfully submitted,

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